Claims

[c1] 1. An electromagnetic generator comprising:

a stator structure concentrically disposed to a rotor structure, said stator structure having a radially outer surface and a radially inner surface, and including stacked laminations and an end flange component mounted to at least one axial end of said stacked laminations;

a plurality of space blocks mounted between said stacked laminations and said end flange component, said space blocks being circumferentially spaced and extending radially to define a plurality of radial flow passages therebetween; and

a baffle plate secured to said end flange component to extend radially inwardly from said end flange component substantially to said stator structure radially inner surface, said baffle plate including a plurality of radial slots for receiving copper end turns of said stator structure, whereby cooling air flowing between said stacked laminations and said end flange is directed substantially to said radially inner surface of said stator flange.

[c2] 2. An electromagnetic generator as in claim 1, wherein said baffle plate is generally disk-shaped having a centrally defined opening for accommodating the rotor structure, said plurality of radial slots extending from an inner peripheral edge of said baffle plate defined by said central opening.

[c3] 3. An electromagnetic generator as in claim 1, wherein said baffle plate is secured between said space blocks and said end flange component.

[c4] 4. An electromagnetic generator as in claim 1, wherein said baffle plate further includes a plurality of annular slots, said slots extending part circumferentially and being defined radially outside said radial slots.

[c5] 5. An electromagnetic generator as in claim 4, wherein said annular slots are disposed to overlap said end flange structure thereby to define access for cooling flow to said end flange component axial surface.

[c6] 6. An electromagnetic generator as in claim 1, wherein said baffle plate is formed from a non-magnetic material.

[c7] 7. An electromagnetic generator as in claim 1, wherein said baffle plate component is formed from stainless steel.

[c8] 8. An electromagnetic generator as in claim 1, wherein said baffle plate has a thickness of about 2 mm.

[c9] 9. An electromagnetic generator as in claim 2, wherein a surface of said baffle plate facing the cooling gas flow between the space blocks has surface manifestations to promote localized flow turbulence for improving the heat transfer coefficient for improved cooling.

[c10] 10. An electromagnetic generator as in claim 9, wherein said surface manifestations are one of grooves and dimples.

[c11] 11. A method for controlling ventilation flow in a generator comprising:
providing a stator structure concentrically disposed to a rotor structure, said stator structure having a radially outer surface and a radially inner surface, and including stacked laminations and an end flange component mounted to at least one axial end of said stacked laminations, a plurality of space blocks being mounted between said stacked laminations and said end flange component, said space blocks being circumferentially spaced and extending radially to define a plurality of radial flow passages therebetween;
providing a baffle plate structure;
securing said baffle plate structure to said end flange component so as to extend radially inwardly from said end flange component substantially to said stator structure radially inner surface, a radially inner edge of said baffle plate including a plurality of slots for receiving copper end turns of said stator structure; and
directing cooling air to flow between the stacked laminations and the end flange component and guiding the cooling air with said baffle plate to cool a radially inner portion of a first said lamination.

[c12] 12. A method as in claim 11, wherein said step of providing a baffle plate structure comprises providing a generally disk-shaped baffle plate structure having a centrally defined opening for accommodating the rotor structure, and

wherein said plurality of radial slots extend from an inner peripheral edge of said baffle plate defined by said central opening.

[c13] 13. A method as in claim 11, wherein said step of securing comprises securing said baffle plate structure between said space blocks and said end flange component.

[c14] 14. A method as in claim 11, wherein said step of providing a baffle plate structure comprises providing a baffle plate structure having a plurality of annular slots, said slots extending part circumferentially and being defined radially outside said radial slots, and further comprising impinging cooling flow on an axial surface of said end flange component through said annular slots.

[c15] 15. A method as in claim 11, wherein said step of providing a baffle plate structure comprises providing a baffle plate structure having a surface for facing the cooling gas flow between the space blocks that has surface manifestations to promote localized flow turbulence for improving the heat transfer coefficient for improved cooling.

[c16] 16. A method as in claim 15, wherein said surface manifestations are one of grooves and dimples.